STRUCTURAL MATERIALS TESTING BRANCH
OFFICE OF STRUCTURAL MATERIALS
CALIFORNIA DEPARTMENT OF TRANSPORTATION

POST-TENSIONING PRESTRESSING STRAND ANCHORAGE SYSTEM APPLICATION SUBMITTAL

Suppliers seeking approval of post-tensioning (PT) prestressing systems for inclusion on the California Department of Transportation's (Caltrans) Authorized Materials List must submit a complete PT System Application. Once the submittal is approved, a system test of the complete assembly must be performed for Caltrans. The submittal package should reference a document number and/or revision date and must include all of the items listed below:

1. DESCRIPTION

a. Name of the proposed system along with a product description including: type of prestressing steel, the guaranteed ultimate strength (GUTS) of the system, and minimum concrete strength at time of stressing.

b. If this system is proposed for a specific Caltrans project, include the Contract Number.

c. Prior system history (if any) including specific details of projects where the system has been successfully utilized.

2. HARDWARE COMPONENTS

a. Fully detailed drawings of all components of the system including material specifications..

b. Material and component certifications. Ductile iron castings and prestressing steel must be from a previously approved heat by Caltrans, otherwise test coupons or material samples are to be provided at no cost to Caltrans.

c. Adequacy of special bearing plates to be established by three consecutive successful tests in accordance with AASHTO LRFD Bridge Construction Specification Section 10.3.2.3.6.

d. Adequacy of wedge plates to be established by three successful static load tests that simulate actual forces applied to the wedges per Section 4.1.1 (2) of the PTI Guide Specification M50.1-98: *"Acceptance Standards for Post-Tensioning Systems."*

e. Adequacy of strand-wedge connections to be established for each *new* strand/wedge type combination not previously approved by Caltrans per Section 4.1.3 of the PTI Guide Specification.

Note: all component tests to be performed by certified independent laboratories audited by the AASHTO Materials Reference Laboratory (AMRL) or they shall be witnessed by a representative of the Department if they are performed at the supplier's facility. Certified test results to be included as part of submittal package.

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3. CALCULATIONS

a. Stress behind bearing plate at service load after losses. If stresses are not within allowable limits, validate by system performance test (special bearing plate).

b. Stress behind bearing plate at 95% of specified ultimate tensile strength. If stresses are not within allowable limits, validate by system performance test (special bearing plate).

c. Maximum bending stress in bearing plate at 95% of specified ultimate tensile strength. If stresses are not within allowable limits, validate by system performance test (special bearing plate).

d. Show that test block dimensions and skin reinforcement are in conformance with the requirements of AASHTO LRFD Bridge Construction Specification Sections 10.3.2.3.1 to 10.3.2.3.5. Test block size must be no greater than the least dimension of the member for which the application is intended.

4. SYSTEM ASSEMBLY

a. Detailed system drawing of the anchorage system including anchor head, bearing plate, wedges, duct transition, grouting attachment and reinforcement details.

b. Jacking system details including jack capacity, system setup, and specific instructions concerning the stressing method to be used by the contractor performing the work.

c. Complete description of methods used to control seating loss if more than 3/8".

d. Complete description of tendon repair or replacement should a failure occur.

5. SYSTEM PERFORMANCE TEST

a. Detail of proposed test setup including Caltrans load cell in-line with jacking equipment and test block reinforcement/dimensions.

b. Detailed test procedure.

c. System performance testing will be scheduled once the submittal has been reviewed and approved by the Department. Allow the Department 4 weeks for review of the system application submittal.